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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,398	04/26/2001	Yu-Lung Lo	U 013422-3	3415
7590	05/03/2004		EXAMINER ALLEN, DENISE S	
Ladas & Parry 26 West 61st Street New York, NY 25858			ART UNIT 2872	PAPER NUMBER

DATE MAILED: 05/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/843,398

Applicant(s)

LO ET AL.

Examiner

Denise S Allen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-8 and 10-46 is/are pending in the application.
- 4a) Of the above claim(s) 3-8, 21-25 and 37-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-20 and 26-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2001 and 06 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

The substitute drawings were received on February 6, 2004. These drawings are acceptable to the examiner.

In light of the substitute drawings and the Applicant's amendment to the specification on February 6, 2004, the objections to the drawings in the Office Action on November 6, 2003 have been withdrawn.

### ***Response to Amendment***

In light of the Applicant's amendment to the specification on February 6, 2004, the objections to the specification in the Office Action on November 6, 2003 have been withdrawn.

In light of the Applicant's amendment to claims 16 and 31 on February 6, 2004, the objection to claims 16 and 31 in the Office Action on November 6, 2003 has been withdrawn.

### ***Response to Arguments***

Applicant's arguments with respect to claims 10 – 20 and 26 – 36 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 – 12, 14 – 18, 20, 26 – 29, 33, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson-Elli (US 6,243,527) in view of Bulman et al (US 6,393,181).

Regarding claims 10, 26, and 27, Dawson-Elli teaches an optical fiber Bragg grating thermal compensating device (Figure 3), comprising: a substrate (reference 302), formed with an indent (between references 304 and 306) having two opposite lateral ends (at references 304 and 306) and a first length defined between the two opposite lateral ends, and having a first thermal expansion coefficient (column 3 lines 40 – 44); a first block (reference 308) having a second thermal expansion coefficient that is much greater than the first thermal expansion coefficient (column 3 lines 45 – 46), and a second length smaller than the first length (see Figure 3), the first block being transversely affixed to one of the two opposite lateral ends (reference 304) of the indent of the substrate such that a space (between references 312 and 306) is formed between the other end of the two opposite lateral ends of the indent of the substrate and the block; and an optical fiber (reference 314) embedded with grids (reference 319) having a first end (at reference 316) affixed to the first block and a second end (at reference 318) affixed to a affixing member (reference 306) of the substrate, the affixing member being located in the indent of the substrate and distant from the first block. Dawson-Elli does not teach that the first block is made of metal.

Bulman et al teaches an optical fiber Bragg grating thermal compensating device (Figure 3a) with a substrate (reference 25) and a first block (reference 24) that is made of metal (column 3 lines 48 – 50). Since the first blocks of both Dawson-Elli and Bulman et al have high thermal expansion coefficients (Dawson-Elli column 3 lines 45 – 46 and Bulman et al column 3 lines 49 – 50), it would have been obvious to one of ordinary skill in the art at the time of the invention to make the first block of Dawson-Elli out of the metal used in Bulman et al in order to simplify the machining of the first block.

Regarding claim 11, Dawson-Elli teaches the first block is in contact with part of the grids next to the first block (at reference 316).

Regarding claim 12, Dawson-Elli teaches the affixing member (reference 306) is an integral part of the substrate (see Figure 3).

Regarding claims 14, 28, and 29, Bulman et al teaches the affixing member is a second metal block (Figure 3a reference 23) having the second thermal expansion coefficient and a third length such that the sum of the second and third lengths is smaller than the first length such that a space remains between the two metal blocks when the first and second metal blocks are each affixed to opposing ends of the indent (Figure 3a the space between references 23 and 24).

Regarding claim 15, Bulman et al teaches the grids have an overall length being slightly smaller than the difference between the first length and the sum of the second and third length (Figure 3a reference 21).

Regarding claim 16, Dawson-Elli teaches the optical fiber is cured to the substrate and/or the metal block by thermally cured adhesive at a temperature of 100°C (column 3 lines 52 – 54).

Regarding claims 17 and 33, Dawson-Elli teaches the grids are affixed to the substrate and/or metal block by means of instant cured adhesive while the grids are under tension (column 3 lines 52 – 54).

Regarding claims 18 and 34, Dawson-Elli teaches the substrate is made of quartz (column 3 lines 40 – 43).

Regarding claims 20 and 36, Bulman et al teaches the metal block is made of stainless steel (column 3 lines 48 – 49).

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson-Elli in view of Bulman et al and further in view of Engelberth et al (US 6,101,301) and Thomas (US 2,531,308).

Dawson-Elli in view of Bulman et al teaches the device as described above. Dawson-Elli and Bulman et al does not teach a manually adjusting mean including: a first and a second arms integrally formed at one end of the substrate and spaced apart with each other along a longitudinal direction of the substrate, and a threaded rod having a section of positive screw thread and a section of counter screw thread, in which the sections of the positive screw thread and the counter screw thread respectively engage the first and second arms, so that the first and second arms can move relatively along the longitudinal direction of the substrate, when rotating the threaded rod.

Engelberth et al teaches an optical fiber Bragg grating thermal compensating device (Figure 3B) with a manually adjusting mean (references 39 and 40) including: a first and a second arms (reference 39 and the part of reference 35 with reference 40 in it) integrally formed at one end of the substrate (reference 35) and spaced apart with each other along a longitudinal direction of the substrate, and a threaded rod (reference 40), so that the first and second arms can move relatively along the longitudinal direction of the substrate, when rotating the threaded rod (column 5 lines 53 – 60). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the manually adjusting mean of Engelberth et al in the device of Dawson-Elli in view of Bulman et al in order to adjust the wavelength reflected by the grids (Engelberth et al column 5 lines 60 – 63). Engelberth et al does not teach the threaded rod having a section of positive screw thread and a section of counter screw thread.

Thomas teaches a threaded rod (Figure 3 reference 12) having a section of positive screw thread (reference 13) and a section of counter screw thread (reference 14). The threaded rod of Thomas is used to move first and second arms (Figure 5 references 23 and 24) relatively along a direction. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the threaded rod of Thomas in the manually adjusting means of Engelberth et al in order to make adjustments more quickly.

Claims 19 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson-Elli in view of Bulman et al and further in view of Engelberth et al.

Dawson-Elli in view of Bulman et al teaches the device as described above. Dawson-Elli and Bulman et al does not teach the metal block is made of aluminum.

Engelberth et al teaches an optical fiber Bragg grating thermal compensating device (Figure 3B) with a substrate and a first block that is made of aluminum. It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the stainless steel of Bulman et al with the aluminum of Engelberth et al in order to make the device lighter in weight.

Claims 30 – 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dawson-Elli in view of Bulman et al and further in view of Dariotis et al (US 6,377,727).

Regarding claim 30, Dawson-Elli in view of Bulman et al teaches the device as described above. Dawson-Elli and Bulman et al does not teach the method of manufacturing this device including the step of placing the device under a thermal state.

Dariotis et al teaches the step of placing an optical fiber Bragg grating thermal compensation device under a thermal state (column 6 lines 8 – 10). It would have been obvious

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to one of ordinary skill in the art at the time of the invention to use the thermal state of Dariotis et al in the manufacturing of the device of Dawson-Elli in view of Bulman et al in order to establish the appropriate temperature compensation relationship (Dariotis et al column 6 lines 18 - 21).

Regarding claim 31, Dawson-Elli teaches the optical fiber is cured to the substrate and/or the metal block by thermally cured adhesive (column 3 lines 52 - 54).

Regarding claim 32, the grids are inherently annealed during the step of placing the device under a thermal state described above.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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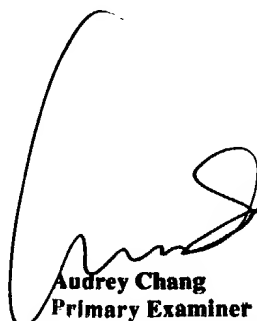
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise S Allen whose telephone number is (571) 272-2305. The examiner can normally be reached on Monday - Friday, 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Denise S Allen  
Examiner  
Art Unit 2872

  
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